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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, TAM M

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 12/23/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

139

Office Action Summary

Application No.

09/851,131

Applicant(s)

BIGNAZZI ET AL.

Examiner

Tam M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2 and 4-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, and 4-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- ☐ Interview Summary (PTO-413) Paper No(s). _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The rejection of claims 1, 2, and 4 under 35 USC § 102(b) anticipated by Takagawa et al. (EP-792858) is withdrawn by the examiner in view of the amendment filed on October 24, 2002.

The rejection of claims 1-5 under 35 USC § 112 is withdrawn by the examiner in view of the amendment filed on October 24, 2002.

The objection to claims 3-5 is withdrawn by the examiner in view of the amendment filed on October 24, 2002.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, and 4-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagawa et al. (EP-792858) in view of either Yokoyama et al. (3,957,896) or Munson et al. (6,057,487).

Takagawa discloses a process for separating 2,6-dimethylnaphthalene (2,6-DMN) from its isomers by passing a feed mixture of 2,6-DMN and its isomers (including 2,7-DMN) into a crystallization zone which is operated at a temperature of from 10° C to 60° C and in the presence of a solvent to form a crystal and mother liquid mixture. The mixture is then filtered and rinsed to separate it from the liquid mother. The crystal is then dissolved in solvent to produce a solution which is passed into a recrystallization unit to produce a suspension which is filtered to obtain a pure 2,6-DMN product. The feed mixture comprises 2,6-DMN in a concentration higher than its eutectic concentration. Takagawa also discloses that the same solvent is used in steps above. It is noted that Takagawa does not specifically disclose that the crystallization step is operated at a temperature higher than the highest formation value of any eutectic of 2,6-DMN and another isomer in the mixture. However, as disclosed in the present specification, the crystallization temperature of the present invention is within the range of the crystallization temperature of Takagawa. Therefore, the limitation is embraced by Takagawa. (See entire patent)

Alternatively, Yokoyama teaches a process for separating 2,6-DMN from its isomers by operating the crystallization at temperature higher than the temperature at which it forms a eutectic mixture (See col. 7, 34-53). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Takagawa by operating the crystallization process of Takagawa at the claimed temperature because Yokoyama discloses that it is effective to operate the crystallization process at a temperature higher than the temperature which forms a eutectic.

Takagawa does not disclose that the solvent is methanol. However, both Yokoyama and Munson disclose that methanol can be used as a solvent in a crystallization process of 2,6-DMN. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Takagawa by using methanol as a solvent because Takagawa discloses that other solvents can be used in the process and both Yokoyama and Munson teach that methanol has an equivalent function as an aliphatic hydrocarbon solvent in the process of crystallization of 2,6-DMN. (See Yokoyama col. 7, lines 34-53; Munson col. 5, lines 49-55)

Response to Arguments

The argument that the process of Takagawa is limited to an amount of 2,7-DMN in the feed whereas the present claimed process is not limited to the amount of 2,7-DMN is noted. However, the argument is not persuasive because the claimed process does not include the limitation of the amount of 2,7-DMN in the feed mixture.

The argument that Takagawa does not disclose the claimed temperature is noted. However, the argument is not persuasive because Takagawa discloses the crystallization temperature of from 10-60° C and these temperatures overlap the present invention temperatures (as disclosed in the present specification). It is reminded that one of skill in the art would operate the process of Takagawa at any temperature from 10 to 60° C including the claimed temperatures.

The argument that Munson optionally uses solvent when the concentration of 2,6-DMN and 2,7-DMN is low whereas the concentration of 2,6-DMN and 2,7-DMN in Takagawa is high, so no motivation to combine the two processes is noted. However, the argument is not persuasive because Munson only **prefers** to use solvent when the concentration of 2,6-DMN and 2,7-DMN is low. When a solvent is applied, either methanol or a hydrocarbon solvent such as heptane can be used in the process of Munson. Therefore, the examiner maintains that it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Takagawa by using methanol as a solvent because methanol has **an equivalent function** as an aliphatic hydrocarbon solvent in the process of crystallization of 2,6-DMN.

The argument that Munson uses an adsorbent to separate 2,6-DMN from 2,7-DMN whereas the present invention does not involve the use of adsorbent is noted. However, the argument is not persuasive because the examiner modified the process of Takagawa by utilizing methanol. The examiner does not employ the Munson adsorbent in the process of Takagawa.

The argument that the process of Munson produces a crystallization yield of 16.4%, which is significantly lower than the claimed invention, is noted. However, the argument is not

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persuasive because the claimed process does not include the limitation of the yield of the crystallization. Also, as discussed above, the examiner only modified the process of Takagawa by using methanol as a solvent. The examiner did not interconnect the two processes together.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tam M. Nguyen whose telephone number is (703) 305-7715. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the


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organization where this application or proceeding is assigned are (703) 305-5408 for regular communications and (703) 305-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tam M. Nguyen
Examiner
Art Unit 1764

Tam Nguyen/ TN
December 18, 2002


Walter D. Griffin
Primary Examiner